

From life cycle talking to taking action

The 4th International Conference on Life Cycle Management: The Global Challenge of Managing Life Cycles

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Abstract

Introduction The biannual Life Cycle Management conference series aims to create a platform for users and developers of Life Cycle Assessment (LCA) and related tools to share their experiences. A key concern of the LCM community has been to move beyond the production of LCA reports toward using the developed knowledge. This paper reports and evaluates some of the main outcomes of the 4th International Life Cycle Management Conference (LCM 2009).

Results *Conference focus:* While the focus of the conference was LCM, LCA remains a main analytical tool for supporting LCM. This is clearly shown by the overall program in which roughly half of the contributions focused on or used LCA. Some products and resources and environmental themes were markedly represented in the presentation subjects. *Conference participation:* The 180 delegates included 40 South Africans, 20 from other

African countries, and 140 from as far afield as Brazil, Sweden, Japan, and Australia. The surveyable number of delegates and conference rooms, in combination with the well-balanced scientific and social program, facilitated optimal professional exchange and discussion. *Conference structure:* LCM 2009 featured some 140 contributions from 47 leading environmental practitioners, consultants, and academic researchers. The interactive conference format included three plenary sessions and training workshops. *Conclusions* LCM 2009 successfully engaged with the critical questions of what it means to manage (not merely shift) the environmental and social impacts of global economic activity, what this entails for industry and public services in emerging economies, and how supply chains, networks, and partnerships can be stimulated and managed to deliver truly sustainable practice.

Keywords Life cycle assessment · Life cycle management · Conference · Sustainability · Social impacts

See www.lcm2009.org for abstracts and slideshows of many presentations.

¹ LCM2007, Zürich, Switzerland: Int J Life Cycle Assess, Vol.12, Special Issue No.1, August 2007

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1 Introduction

The tradition of the Life Cycle Management (LCM) conference series was established with the first LCM conference in 2001 in Copenhagen, Denmark, followed by Barcelona, Spain, in 2005, and Zürich, Switzerland, in 2007 (Hellweg et al. 2008)¹. The biannual LCM conferences aim to create a platform for users and developers of life cycle assessment tools to share their experiences as they challenge traditional environmental management practices, which are narrowly confined (“gate-to-gate”) and unable to arrest the growth of global sustainability pressures. A key concern of the LCM community has been to move beyond the production of Life Cycle Assessment (LCA) reports,

towards using the developed knowledge so as to promote targeted interventions that minimize the environmental (and socio-economic) impacts of products, services and activities throughout entire material life cycles and value chains, both for private and public enterprises. The 4th International Life Cycle Management Conference (LCM 2009) was a success in this respect. This paper reports and evaluates some of the main outcomes of LCM 2009.

2 Venues and structure of the conference

LCM 2009 took place from 6 to 9 September 2009 at the Vineyard Hotel in the beautiful Southern Suburbs of Cape Town, South Africa. The conference was hosted by the University of Cape Town and supported by the United Nations Environment Program. The 180 delegates who attended included 40 South Africans, 20 from other African countries, and 140 from as far afield as Brazil, Sweden, Japan, and Australia. This made LCM 2009 a truly global international conference. The surveyable number of delegates and conference rooms, in combination with the well-balanced scientific and social program, facilitated optimal professional exchange and discussion.

LCM 2009 featured some 140 contributions from leading environmental practitioners, consultants, and academic researchers. The industry contributions included examples of LCM thinking and practice from five global companies (Unilever, Hewlett-Packard, Sasol, SAB Miller, and Novozymes). The three plenary presentations helped to define critical problems such as socio-environmental inequity in global supply chains, describe the fast-changing global context in which solutions to such problems have to be developed and implemented, and explore new bodies of science (such as systems intelligence) that enable LCM-type solutions.

The interactive conference format included training workshops dealing with the challenges of energy, climate change, and carbon trading; restorative urban water management; and decision support for the planning and practice of LCM. Pre- and post-conference training was offered by some of the participants on topics such as life cycle-based waste management, LCM for business, and LCM for the public sector.

3 The role of the social context in sustainable development

In the first plenary, Roland Clift of the University of Surrey conveyed several key points, including the need to view pollution as an excrescence of *consumption* rather than

production. He pointed out that while global climate change is at the top of the environmental agenda, the four “E’s” of sustainability (Environment, Efficiency, Equity, and Ethics) is an ethical concept, i.e., justice. We need to apply “soft system modeling” along with the current approach of “hard system modeling.” Finally, Clift cautioned that simple sustainability checklists may not be enough without looking further into what is behind them, such as the issue of child labor (i.e., stopping child labor may not be the optimal choice without considering children’s options which may be worse).

In the second plenary, Mark Drewel, 3 Laws Capital, began the session by describing the anticipation of a big (“Copernican”) shift in 2010–2020. We face the possibility of systems failing (failed states) leading to potential collapse as we face a global tipping point. Emerging and unfolding human consciousness has recognized the “800 pound climate change gorilla in the room” that may induce irrational responses and panic.

Several keynote and plenary speakers illustrated the importance of the social context for sustainability by addressing the African and South African situations. Edgar Pieterse described Africa as a rapidly urbanizing continent with vast urban slum populations—this is a key feature in relation to extended producer responsibility in as much as companies who sell products into such markets cannot rely on organized local government or on dependable urban infrastructure systems to facilitate implementation of their end of life policies. Pieterse also outlined the democratic process after apartheid was abolished in 1994. Notwithstanding impressive achievements since, he pointed at the large share of South Africans living in inadequate houses, without work and education, and also facing other consequences of poverty. The resulting social exclusion turns out to block for sustainable development. Richard Chance came to a similar evaluation of why South African Breweries see 70% of their products sold in illegal stores and how this keeps hampering their corporate social responsibility initiatives. Pieterse (2000) sees participatory governance systems on the (semi-)local level as a way out of social exclusion in South Africa as well as in other countries with similar situations.

Stakeholder participation was also the purport in the plenary closing contributions of Raimo Hamalainen, Theo Stewart, and Jim Petrie. Theo Hamalainen called attention to his concept of Systems Intelligence as a capacity of people and organizations for productively implementing life cycle thinking. This capacity involves looking beyond static LCA boundaries and shifting focus to subjective values and preferences by also addressing psychological, social, and economic aspects. This fits well in a multi-criteria decision analysis (MCDA) approach as elaborated in the presentation of Theo Stewart. MCDA aims at supporting the process of decision making by integrating

objective measurement with value judgment and making explicit and managing subjectivity. Adequate involvement of relevant stakeholders is crucial in MCDA (Belton and Stewart 2002). The three closing presentations started a vigorous discussion with the audience that swung between the view that the LCM toolbox is already full of good tools to be deployed and introspections about the usefulness of the MCDA approach to get LCA type information into use.

The relevance of stakeholder participation in the assessment process was nicely illustrated in the contribution of Pere Fullana. His presentation reflected on the use of life cycle thinking and assessment for industrial waste management policy making in Catalonia, Spain. Stakeholders pressed the assessment team into focusing on energy consumption as a unifying proxy indicator. Such assessment moves away from ISO 14044 and may underrate the relative importance of processes and stages. This made the team initially feel reluctant toward the assessment. The strong and constructive stakeholder involvement grew during the assessment process, however, into an open attitude and awareness for the necessity of a broader environmental perspective than energy consumption only. This has resulted in a solid basis among stakeholders to move towards full LCA next time and empowered them to implement present LCA results. The assessment team retrospectively values this as a major outcome of the assessment process that fully offsets their initial hesitation toward a simplified LCA.

A number of other presentations reported interesting results of life cycle management processes with strong stakeholder involvement. Several Japanese contributions concentrated on the role of communication and education for raising life cycle awareness and behavior with (potential) stakeholders. Hiroki Hondo elaborated on the promotion of life cycle thinking in Japanese schools. Masaharu Motoshita identified consumer preferences and incentives for on-site shopping compared to delivery systems in Japan. Tania Boatto presented a management tool that has proven successful in getting involvement of all stakeholders along Japanese supply chains in reducing greenhouse gas emission. Henry King, building on his Unilever experiences, also stressed that building more sustainable product life cycles is possible, but requires us to engage marketing in our agenda. José Potting valued the cradle-to-cradle concept, despite controversy around it, for empowering stakeholders to implement life cycle thinking with new and appealing vocabulary to old life cycle thoughts (Potting and Kroeze 2010).

4 LCA, products and resources, and environmental themes

LCA remains a main analytical tool for supporting LCM, and this was clearly visible from the overall program.

Roughly half of the contributions focused on or used LCA. Some products and resources and environmental themes were markedly represented in the presentation subjects.

A considerable number of presentations were devoted to energy production from fossil and renewable sources, notably biofuels, and with an emphasis on their “carbon footprint.” A clear impression was that even our most carbon intensive manufacturing companies have started to draw lessons from LCA by interrogating the very nature of their business. They signaled a drive to bring about a big technology change, like implementing carbon capture and storage in 10 years, or, if not possible, alternatively move into other cleaner energy business. There were also interesting examples of LCM in practice, like the case of Novozymes who claims 29 Mt of avoided CO_{2-eq} per year arising from the use of their products, and the ability to increase that level to 1,000 Mt CO_{2-eq} for the biotechnology sector as a whole.

Also resource management was often addressed in LCM 2009. This becomes even more challenging if we switch from a supply chain view to a product stewardship view, as exemplified by the WEEE challenge in countries without manufacturing capacity. Kirstie McIntyre, HP, questioned, “where is the natural wealth of nations?” Her talk focused on the 40–50 million tons per year of waste that are produced worldwide. Electronics waste is increasing at a rate three times that of other waste types. Mark Swilling reported on the work of the UN Resources Panel which is preparing to ask about modalities and temporalities of change. This is the time for stakeholders industry to help make supply chains more equitable.

Freshwater use is an environmental issue that rapidly emerged a few years ago and already gained considerable acceptance as an impact category in LCA. Manuele Margni presented a framework to harmonize the assessment of fresh water use. Fresh water is an essential life-sustaining resource; its quality, availability, and accessibility are at stake, especially in developing economies. It is therefore encouraging to see the methodological progress and body of knowledge building up around this theme. A similar evaluation applies to the group of food products and impact categories related to social LCA.

Few presentations dealt with LCA as an analytical framework. There seems to be a clear tendency toward stakeholder-induced simplified forms of LCA addressing single environmental issues (e.g., carbon or water footprinting, life cycle energy analysis). Proposals for detailing existing and adding new parts to the LCA framework, on the other hand, also remain to be put forward. This suggests an incongruity between the perceived need of stakeholders for simplified LCA and the interest of analysts to expand the analytical framework. Interesting

in this context is the apparent acceptance of regionalization in the LCA and LCM community at present, where this mainly met resistance in the first decennia of method development.

5 Conclusions towards LCM 2011

LCM 2009 successfully engaged with the critical questions of what it means to manage (not merely shift) the environmental and social impacts of global economic activity, what this entails for industry and public services in emerging economies, and how supply chains, networks, and partnerships can be stimulated and managed to deliver truly sustainable practice.

A man of words and not of deeds is like a garden full of weeds. LCM 2009, therefore, was consciously organized to be an “eco-efficient” event. It has invigorated the global LCM agenda and leaves a legacy at www.lcm2009.org, while at the same time having remained a midsize specialist

event with carbon offsetting that supports a local sustainable development project.

LCM 2011 will be held on August 28–31, 2011, in Berlin (www.lcm2011.org). The conference co-chairs are Prof. Matthias Finkbeiner of TU Berlin and Dr. Stephan Krinke of Volkswagen AG.

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